PATENT SPECIFICATION

Application Date: June 21, 1943. No. 9935/43. **566,834**

" " July 14, 1943. No. 11483/43.

One Complete Specification left (under Section 16 of the Patents and Designs Acts, 1907 to 1942): June 21, 1944.

Specification Accepted: Jan. 16, 1945.

PROVISIONAL SPECIFICATION
No. 9935 A.D. 1943.

An Improved Mixing or/and Whisking Machine

I, RAYMOND JOLLANDS, 23, Magazine Square, The Newarkes, Leicester, a British Subject, do hereby declare the nature of this invention to be as follows:—

The materials required to make one machine are as follows:—(in order of assembly).

Two switch blocks, one $6\frac{1}{2}" \times 3\frac{1}{2}"$, the other $9\frac{1}{2}" \times 6\frac{1}{2}"$.

An electric motor of 1/10th horse power (or less) also rheostat.

Four $\frac{1}{4}"$ bolts and nuts.

Four $\frac{5}{16}"$ ordinary washers.

Four $\frac{3}{16}"$ Whitworth bolts.

One square glass jar (round metal screw on lid).

Four $\frac{5}{16}"$ (thick) spacer washers.

An extension shaft $5" \times \frac{3}{4}" \times \frac{1}{4}"$ is fitted on to the armature shaft (being turned down $4\frac{1}{4}"$ along the length of steel rod to $\frac{1}{4}"$), thereby forming a shoulder at one end $\frac{3}{4}"$ diameter $\times \frac{3}{4}"$ length.

METHOD OF ASSEMBLY.

The motor is bolted on to the small block, both motor and block are then bolted on to the larger block, (so bringing the armature shaft a further two inches away from the wall). One end of the motor housing is drilled and tapped to take the four $\frac{3}{16}"$ Whitworth bolts. The metal lid of the jar is also drilled, holes being made to correspond with those drilled in the motor housing. A fifth hole is drilled centrally for the armature shaft to pass through. The lid is then bolted to the motor housing, (spacer and ordinary washers being used to make the lid rigid).

The extension shaft is fitted with two $1\frac{1}{4}"$ diameter metal discs, one being soldered near the end, the other soldered two inches from the shoulder. The discs are slotted and shaped to force air into the liquid.

All bolts, washers and the extension shafts are chromium finished.

The machine is screwed to the wall in a vertical position (the extension shaft being downwards). The jar is secured or removed by a simple twist of the wrist:— a switch is screwed on to the larger block above the motor, the machine is wired up in " series " with a rheostat (rheostat separate from machine).

Dated this Seventeenth day of June, 1943.

E. N. LEWIS & TAYLOR,
Chartered Patent Agents,
Berridge Street Chambers, Leicester,
Agents for the Applicant.

PROVISIONAL SPECIFICATION
No. 11483 A.D. 1943.

An Improved Mixing or/and Whisking Machine

I, RAYMOND JOLLANDS, a British Subject, of 23, Magazine Square, Leicester, do hereby declare the nature of this invention to be as follows:—

This invention concerns an improved mixing or/and whisking machine and is cognate with that described in the Specification of my co-pending Application No. 9935 of 1943.

The invention has for its object to provide a mixing or/and whisking machine of a simple and compact form especially adapted for use domestically for mixing powdered granulated or like dry substances, or liquid substances, or both dry and liquid substances, in the production of foodstuffs, such as mixtures for puddings and like confections, or for liquidizing dried milk, dried eggs and the like, or for whisking shell eggs, and other culinary substances.

Accordingly the invention consists of a machine comprising essentially a small electric motor (e.g. of the order of 1/10 H.P. or less), a jar or like receptacle fitted with a lid to which the motor is directly attached so that the motor and the jar or receptacle are axially opposed, and stir-

[*Price* 1/-]

ring means which extend axially from the motor so that when the latter and the jar or receptacle are combined the stirring means are located within the jar or receptacle.

Preferably the motor is also fixed on a panel, bracket or like support for attachment to a wall, table or equivalent, and on which, or on an associated block, a switch and, if necessary, a variable resistance, such as a rheostat, or/and, according to the voltage required, a transformer may also be mounted.

The invention includes as a feature stirring means consisting of a shaft extending from the armature shaft of the motor and fitted with axially spaced stirrers formed suchwise as to resemble propellers or impellers and so arranged on the shaft that the one nearer to the motor operates near the surface of the substance to be mixed and functions to force air into the substance, while the other operates in the lower portion of the substance to effect further mixing.

In the preferred embodiment of the invention the stirrers are constituted by discs each slit or slotted radially inwards from the periphery at appropriate angular intervals, and having each of the sector-like portions thus formed bent, e.g. at one side adjacent to a slit or slot, suchwise as to provide facially offset portions. In operation the disc nearer the motor forms a whirlpool or vortex in a wet mixture or liquid so that the substance is aerated and, in the case of mixtures for puddings, cakes and other confections, a light product results.

The complete machine is primarily intended to be used in a vertical position with the jar or receptacle suspended from the motor and the stirring means depending into the jar or receptacle.

Preferably a glass jar with a square body fitted with a round screwed metal lid is combined with the motor, so that when the machine is supported in a vertical position the jar can be readily removed from and applied to the lid by a simple turning or twisting action.

When the machine is intended to be used on a wall, the panel, bracket or like support is also attached to a spacing block so that the machine is positioned well away from the wall and is thus conveniently accessible for removal and attachment of the jar or receptacle to the lid.

According to a particular illustrative embodiment of the invention an electric motor of a H.P. of the order hereinbefore mentioned is attached to a metal screwed lid of a square glass jar by means of nut and bolt fastenings with which are associated distance pieces and washers to provide a rigid attachment so that when the jar is screwed into the lid the motor and the jar are coaxially combined. The motor is also secured to a panel, e.g. by means of nuts and bolts, and this panel is attached to a spacing block also by means of nuts and bolts or screws, for the purpose already alluded to herein. An extension shaft is attached coaxially to the armature shaft of the motor and rigidly mounted on this shaft are two discs suitably spaced on the shaft, each disc being slit or slotted radially for an appropriate distance from its periphery and having one corner of each portion between slits or slots bent so as to form in effect a screw propeller or impeller.

According to a specific construction each disc is slit at diametrically opposite points and, considering the disc horizontally, the corner portions thus formed are bent upwards and downwards alternately, but, assuming the extension shaft to be vertical, the lower disc is formed in the reverse manner to the upper disc, that is to say whereas in the upper disc the corner portions are bent in the order upwards and downwards, in the other disc the corresponding corner portions are bent downwards and upwards respectively. Moreover, the discs are secured on the said shaft with the slits of one at right angles to the slits of the other. In this specific construction and arrangement, considering the shaft as driven in a clockwise direction, the upper disc operates with downward thrust and the lower disc operates with upward thrust.

The aforesaid illustrative embodiment of the invention constitutes a neat and compact machine in the form of a self-contained unit adapted for use in a vertical position on a wall.

If desired, lids of two or more different sizes may be combined, concentrically, with the motor so as to enable jars or like receptacles of different capacities to be used.

A stand or like support may be provided in combination with the machine to carry the weight of the jar or receptacle particularly when a large receptacle, e.g. of a capacity of half a gallon, is provided. The stand or support would be adjustable, detachable or collapsible so as to enable it to be moved away from its normal position to permit of attachment and detachment of the jar or receptacle, and when the machine is not required for use. For example, the stand or like support may be pivotally or slidably mounted in connection with the machine.

Fixed mixing blades or like attachments may be provided on the lid or each lid.

according to the number provided, so as to extend into the jar or receptacle, said blades or attachments being obliquely disposed, in the transverse direction, relatively to the discs.

A switch and a rheostat electrically connected in series are secured on the spacing block.

The materials required to make a machine constituting the aforesaid illustrative embodiment of the invention and the method of assembly are described in detail in the Specification of the co-pending Application hereinbefore referred to, but as will be understood, variations in these constructional details may be made without exceeding the scope of the invention.

Dated this Ninth day of July, 1943.
E. N. LEWIS & TAYLOR,
Chartered Patent Agents,
Berridge Street Chambers, Leicester,
Agents for the Applicant.

COMPLETE SPECIFICATION

An Improved Mixing or/and Whisking Machine

I, RAYMOND JOLLANDS, a British Subject, of 23, Magazine Square, Leicester, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention concerns an improved mixing or/and whisking machine and has for its object to provide such a machine of simple and compact form especially adapted for use domestically for mixing powdered, granulated or like dry substances, or liquid substances, or both dry and liquid substances, in the production of foodstuffs, such as mixtures for puddings and like confections, or for liquidizing dried milk, dried eggs and the like, or for whisking shell eggs, and other culinary substances.

Accordingly the invention consists of a machine comprising, in combination, a small electric motor (e.g. of the order of 1/10 H.P. or less), a jar or like receptacle fitted with a lid to which the motor is directly attached so that the motor and the jar or receptacle are axially opposed and stirring means which extend axially from the motor so that when the latter and the jar or receptacle are combined the stirring means are located within the jar, or receptacle, said stirring means consisting of a shaft extending from the armature shaft of the motor and fitted with axially spaced stirrers slotted and shaped such wise as to resemble propellers or impellers and so arranged on the shaft that the one nearer to the motor operates near the surface of the substance to be mixed and functions to force air into the substance, while the other operates in the lower portion of the substance to effect further mixing.

Preferably the motor is also fixed on a panel, bracket or like support for attachment to a wall, table or equivalent, and on which, or on an associated block, a switch and, if necessary, a variable resistance, such as a rheostat, or/and, according to the voltage required, a transformer may also be mounted.

In the preferred embodiment of the invention the stirrers are constituted by discs each slit or slotted radially inwards from the periphery at appropriate angular intervals, and having each of the sector-like portions thus formed bent, e.g. at one side adjacent to a slit or slot, such-wise as to provide facially offset portions. In operation the disc nearer the motor forms a whirlpool or vortex in a wet mixture or liquid so that the substance is aerated and, in the case of mixtures for puddings, cakes and other confections, a light product results.

The complete machine is primarily intended to be used in a vertical position with the jar or receptacle suspended from the motor and the stirring means depending into the jar or receptacle.

Preferably a glass jar with a square body fitted with a round screwed metal lid is combined with the motor, so that when the machine is supported in a vertical position the jar can be readily removed from and applied to the lid by a simple turning or twisting action.

When the machine is intended to be used on a wall, the panel, bracket or like support is also attached to a spacing block so that the machine is positioned well away from the wall and is thus conveniently accessible for removal and attachment of the jar or receptacle to the lid.

In order that the invention may be more clearly understood and readily carried into practical effect, a specific example of a mixing machine constructed in accordance therewith will now be described with reference to the accompanying drawings, wherein,

Figure 1 is a front view of the said machine.

Figure 2 is a side view of the same,

Figure 3 is an underside plan view of the lid to which the motor is attached,

Figure 4 is a detail transverse sectional view taken on the line IV—IV of Figure 3,

Figure 5 shows a radially slit stirrer disc as it appears before being bent to shape,

Figure 6 is a diagram showing the manner in which the top and bottom stirrer discs are bent,

Figure 7 is an elevational view of the armature shaft extension *per se*,

Figure 8 is a similar view of the said extension shaft with the stirrer discs attached,

Figure 9 is a diagram showing the relative disposition of the stirrer discs on the shaft, and

Figures 10 and 11 are plan and sectional views respectively of one of the distance pieces employed in association with the motor securing means hereinafter described.

Like parts are designated by similar reference characters.

Figures 1—4 are drawn to a smaller scale than the remaining figures.

In the example illustrated an electric motor 1 of a H.P. of the order hereinbefore mentioned is attached to a metal screwed lid 2 of a square glass jar 3 by means of screw fastenings 4 with which are associated distance pieces 5 and washers 6 to provide a rigid attachment so that when the jar is screwed into the lid, as shown in Figures 1 and 2, the motor and the jar are coaxially combined. The screw fastenings 4 are shown in Figures 3 and 4, while one of the distance pieces is shown in detail in Figures 10 and 11. As will be seen, these distance pieces are interposed between the underside surface of the bottom portion 1*a* of the motor casing and the top surface of the lid 2. The screws 4 extend vertically upwards through the lid and the distance pieces 5 and are screwed into tapped holes formed in the aforesaid portion 1*a* of the motor casing. The motor 1 is carried by a bracket 7 which is secured by means of nut and bolt fastenings 8 to a spacing block 9 in turn secured by similar fastenings 10 to a panel 11. As shown in Figure 1, this panel is formed with holes 11*a* for the passage of screws or other fastenings (not shown) whereby the machine can be secured to a vertical wall or similar surface: such a surface is indicated in dot-and-dash lines at 12 in Figure 2.

An extension shaft 13 is attached coaxially to the armature shaft 17 of the motor and rigidly secured on this shaft by soldering are two discs 15 and 15' suitably spaced on the shaft, each disc being slit or slotted radially for an appropriate distance from its periphery and having one corner of each portion between slits or slots bent so as to form in effect a screw propeller or impeller. Referring to Figure 7 it will be seen that the upper portion 13*a* of the extension shaft 13 is of larger diameter than the remaining portion and is axially bored at 13*b* suchwise as to provide what is in effect a socket for reception of the armature shaft 17 (see Figure 4). The enlarged portion 13*a* is formed with tapped holes 13*c* and 13*d* which are disposed at right angles with respect to each other and adapted to receive small grub screws 18 and 19, Figure 4, whereby the extension shaft 13 is attached to the armature shaft.

Each of the discs 15 and 15' is initially slit by saw cuts at diametrically opposite points 20 and, considering the disc horizontally, the corner portions 15a thus formed (see Figure 5) are bent upwards and downwards alternately. Assuming the extension shaft to be vertical, however, the lower disc 15' is formed in the reverse manner to the upper disc 15, that is to say whereas in the upper disc the corner portions 15*a* are bent in the order upwards and downwards, in the other disc the corresponding corner portions are bent downwards and upwards respectively. This is clear from a consideration of Figure 6. Moreover, the discs 15 and 16 are secured on the said shaft with the slots 20 of one at right angles to the slits of the other as shown in Figure 9. The extension shaft complete with attached discs is illustrated in Figure 8. In this specific construction and arrangement, considering the shaft as driven in a clockwise direction, the upper disc operates with downward thrust and the lower disc operates with upward thrust.

The described machine is in the form of a neat and compact self-contained unit adapted for use in a vertical position as aforesaid.

If desired, lids of two or more different sizes may be combined, concentrically, with the motor so as to enable jars or like receptacles of different capacities to be used.

A stand or like support may be provided in combination with the machine to carry the weight of the jar or receptacle particularly when a large receptacle, e.g. of a capacity of half a gallon, is provided. The stand or support would be adjustable, detachable or collapsible so as to enable it to be moved away from its normal position to permit of attachment and detachment of the jar or receptacle, and when the machine is not required for use. For

example, the stand or like support may be pivotally or slidably mounted in connection with the machine.

Fixed mixing blades or like attachments may be provided on the lid or each lid, according to the number provided, so as to extend into the jar or receptacle, said blades or attachments being obliquely disposed, in the transverse direction, relatively to the discs.

A switch 21 is secured on the panel.

The materials required to make a machine similar to that described and the method of assembly are described in detail in the Provisional Specification of Application No. 9935 of 1943.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A mixing or/and whisking machine comprising, in combination, a small electric motor, a jar or like receptacle fitted with a lid to which the motor is directly attached so that the motor and the said jar or like receptacle are axially opposed, and stirring means which extend axially from the motor so as to be located within the jar or receptacle when combined with the latter, said stirring means consisting of a shaft extending from the armature shaft of the motor and fitted with axially spaced stirrers slotted and shaped suchwise as to resemble propellers or impellers and so arranged on the shaft that the one nearer to the motor operates near the surface of the substance to be mixed and functions to force air into the substance, while the other operates in the lower portion of the substance to effect further mixing.

2. A machine as claimed in Claim 1, wherein the motor is fixed on a panel, bracket or like support for attachment to a wall table or equivalent, and on which, or on an associated block, a switch is mounted.

3. A machine as claimed in Claim 1, wherein the stirrers are constituted by discs each slit or slotted radially inwards from the periphery at appropriate angular intervals, and having each of the sector-like portions thus formed bent, e.g. at one side adjacent to a slit or slot, suchwise as to provide facially offset portions.

4. A machine as claimed in any of the preceding Claims, wherein a glass jar with a square body fitted with a round screwed metal lid is combined with the motor so that when the machine is supported in a vertical position the jar can be removed from and applied to the lid by a turning or twisting action.

5. A machine as claimed in Claim 2, wherein the panel, bracket or like support is attached to a spacing block, for the purpose specified.

6. A machine as claimed in Claim 4, wherein the motor is attached to the metal screwed lid by means of screw or nut and bolt fastenings with which are associated distance pieces and washers, for the purpose specified.

7. A machine according to Claims 1 and 3, wherein an extension shaft is attached coaxially to the armature shaft of the motor and rigidly mounted on this shaft are two spaced discs each of which is slit at diametrically opposite points, the corner portions thus formed being bent upwards and downwards alternately, but (assuming the extension shaft to be vertical) the lower disc being formed in the reverse manner to the upper disc.

8. A machine as claimed in the last preceding Claim, wherein the discs are secured on the extension shaft with the slits of one at right angles to the slits of the other.

9. A machine as claimed in any of the preceding Claims, wherein lids of two or more different sizes are combined, concentrically, with the motor so as to enable jars or like receptacles of different capacities to be used.

10. In combination with a machine as claimed in any of the preceding Claims, a stand or like support to carry the weight of the jar or receptacle.

11. A machine as claimed in any of the preceding Claims, wherein fixed mixing blades or like attachments are provided on the lid or each lid (according to the number provided) so as to extend into the jar or receptacle, said blades or attachments being obliquely disposed, in the transverse direction, relatively to the stirring means.

12. A mixing or/and whisking machine which is constructed and adapted for use substantially as herein described with reference to the accompanying drawings.

Dated this 15th day of June, 1944.
E. N. LEWIS & TAYLOR,
Chartered Patent Agents,
Berridge Street Chambers, Leicester,
Agents for the Applicant.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1945.

FIG.1.

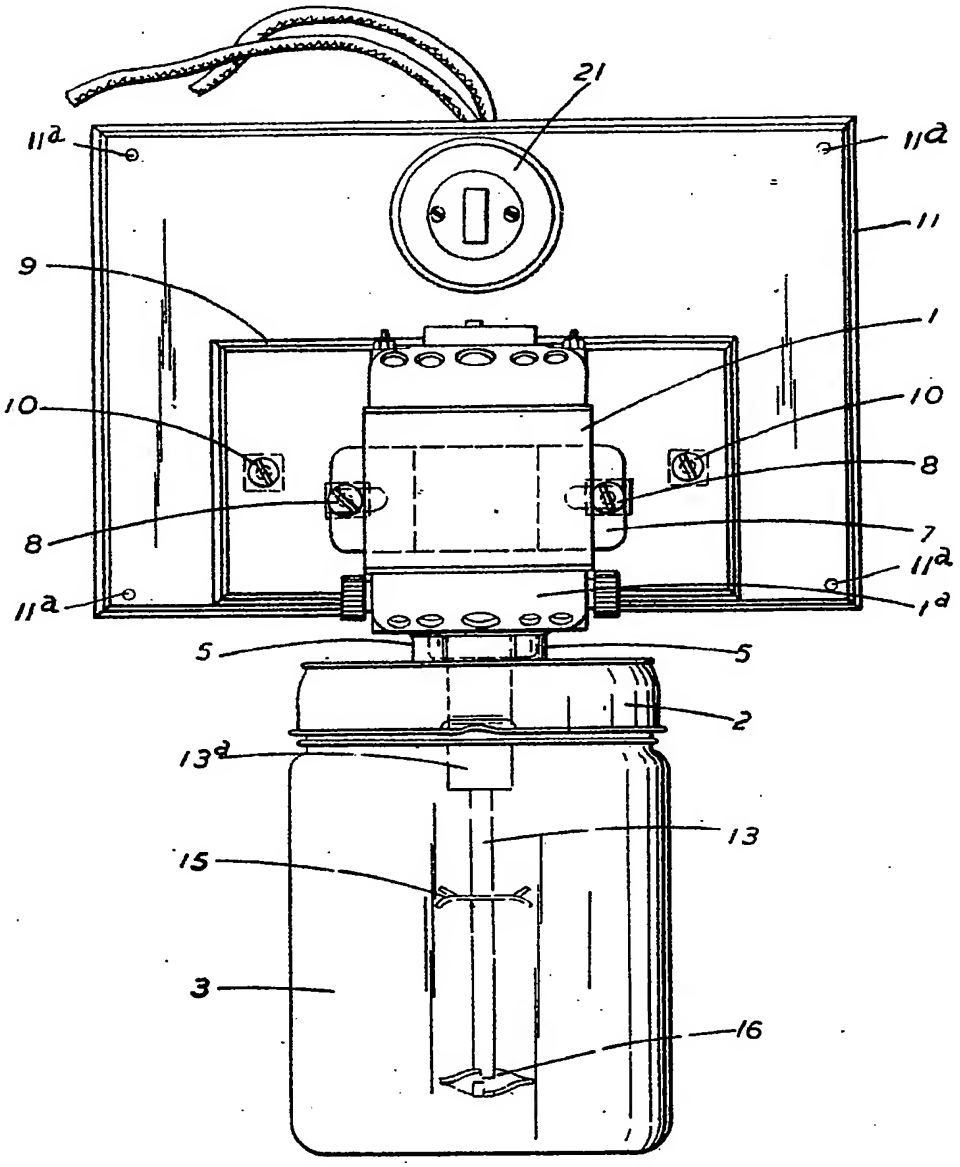

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FIG. 2.

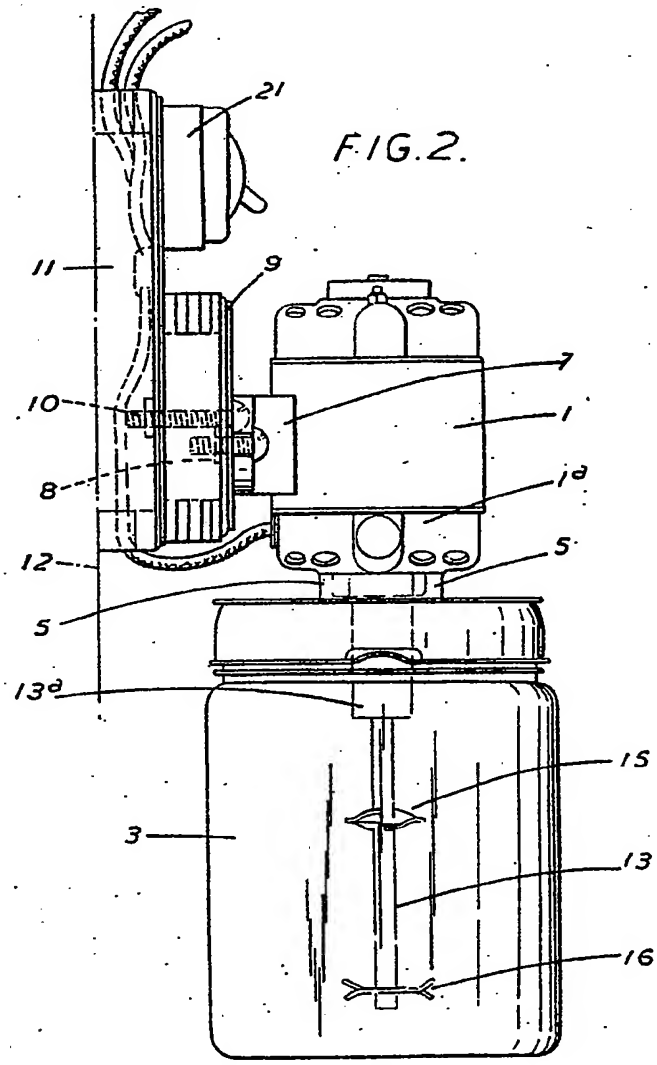


FIG. 3.

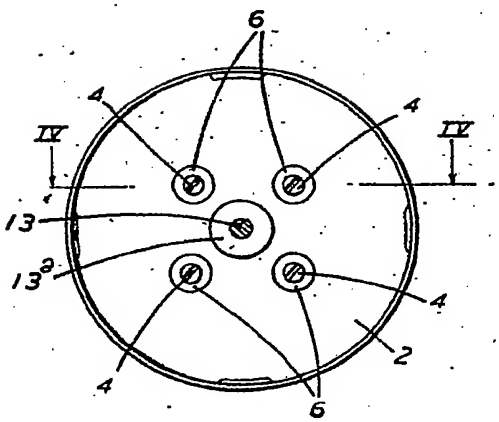


FIG. 4.

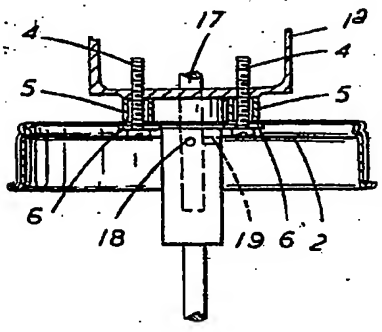


FIG. 7.

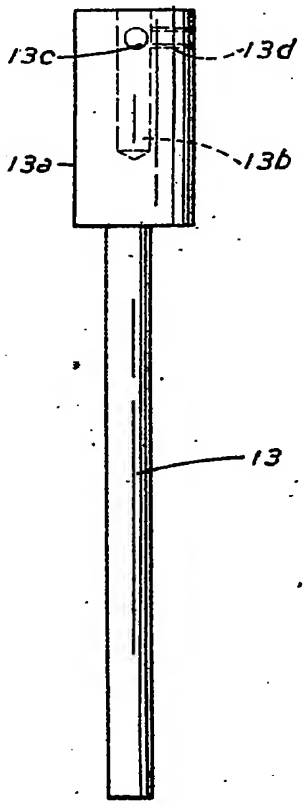


FIG. 8.

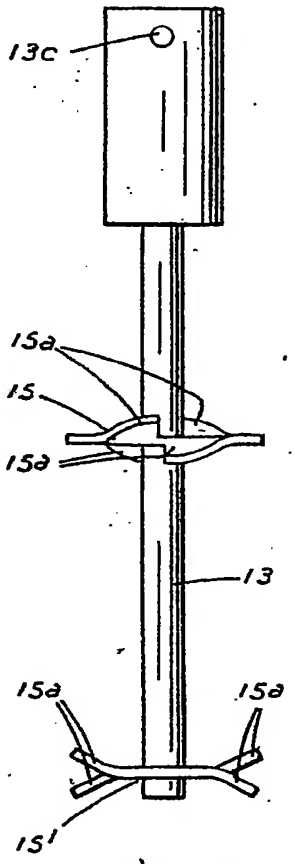


FIG. 5.

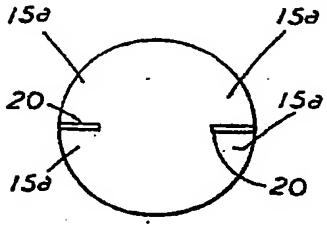


FIG. 9.

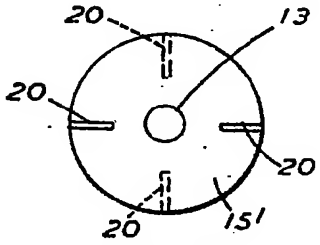


FIG. 6.

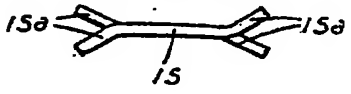
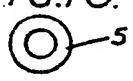


FIG. 10.



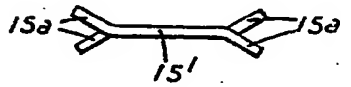


FIG. 11.

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566,834 COMPLETE SPECIFICATION

3 SHEETS
SHEET 3

SHEET 2

FIG. 2.

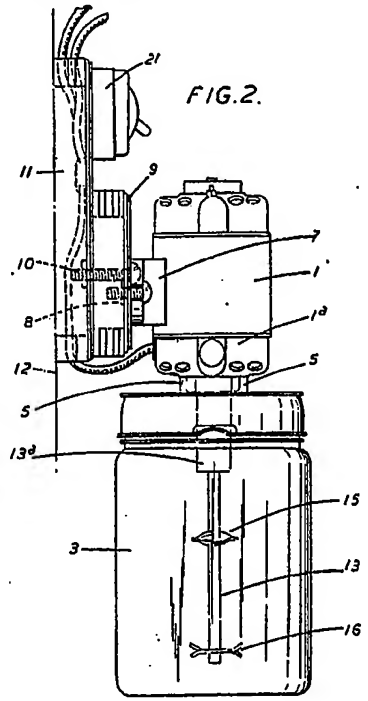

FIG. 3.

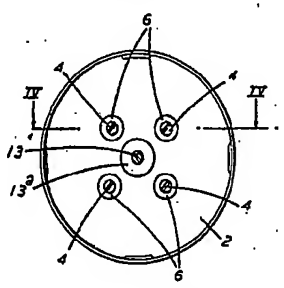

FIG. 4.

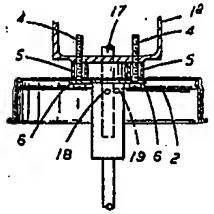

FIG. 7.

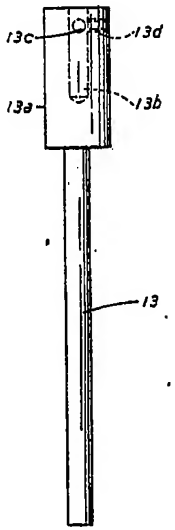

FIG. 8.

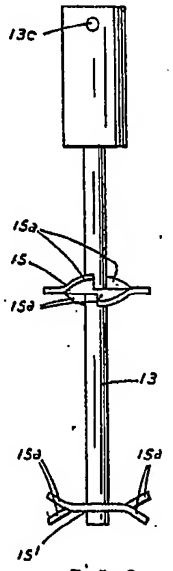

FIG. 5.

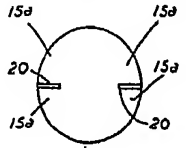

FIG. 9.

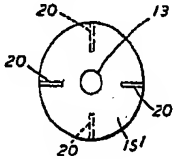

FIG. 6.

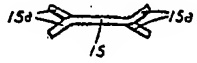

FIG. 10.

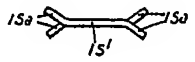

FIG. 11.

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